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EPITOPE OF HOST CARBOHYDRATE RECOGNIZED BY PATHOGENIC
ESCHERICHIA COLI FIMBRIAE

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Many types of fimbriae have been described in pathogenic *Escherichia coli* strains. These fimbriae are classified by fimbrial antigens and specificities of adherence of the pathogenic strains to the host cell. However, the antigenicity of fimbrial proteins does not always correlate with the pathogenicity. Therefore, we examined the exact carbohydrate structures recognized by the fimbriae in two human uropathogenic strains, KS71 and IH11024.

KS71 strain agglutinated human blood OP₁ erythrocyte by so called P fimbriae, and the agglutination was inhibited by P^k antigen, Gal (α, 1-4) Gal (β, 1-4) Glc-Cer, and P antigen, GalNAc (β, 1-3) Gal (α, 1-4) Gal (α, 1-4) Gal (β, 1-4) Glc-Cer, but not by Forssman glycosphingolipid (GSL), Gal (α, 1-3) GalNAc (β, 1-3) Gal (α, 1-3) Gal (β, 1-4) Glc-Cer, as previously described by Korhonen et al., *Infect. Immun.* 37:286-291, 1982. The cells also agglutinated sheep RBC mannose-resistently, but the hemagglutination was inhibited by Forssman GSL as well as by the two other GSLs. These phenomena could not be explained by the specificity of one P fimbrial protein. Therefore, we called sheep RBC-hemagglutinating fimbriae as "Forssmanlike fimbriae". The fact that several organisms which possess different O antigenicity showed non-proportional ability in hemagglutination against both erythrocytes also indicated that there are two different types of fimbriae in the organisms.

IH11024 strain has the same P fimbrial antigenicity but does not show the same specificity at recognition. The organism did not cause human RBC hemagglutination mannose-resistently, but it caused RBC hemagglutination mannose-resistently. The hemagglutination was inhibited by Forssman GSL but not by p^k antigen GSL. This fimbriae was completely different from P fimbriae or Forssman-like fimbriae in several properties concerned with recognition of the carbohydrate epitope. Therefore, we changed the old name of this fimbriae from "pseudotype of P fimbriae" to "Forssman fimbriae."